

COASTAL CONSERVANCY

Project Summary
December 4, 2002

CAULERPA TAXIFOLIA ERADICATION PROGRAM

File No.02-079
Project Manager: Deborah Ruddock

RECOMMENDED ACTION: Approve the report titled "In Progress Review: Ancillary Data and Observations from *Caulerpa taxifolia* Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbour of the Southern California *Caulerpa* Action Team (SCCA T)" as an enhancement plan (Exhibit 1) and authorize the disbursement of up to \$1,300,000 to the Agua Hedionda Lagoon Foundation for continuation of emergency eradication efforts under the enhancement plan for approximately one year and for related data collection activities.

LOCATION: Agua Hedionda Lagoon in San Diego County and Huntington Harbour in Orange County, and other southern California coastal areas, as needed, in accordance with the enhancement plan. (Exhibits 2 and 3)

PROGRAM CATEGORY: Resource Enhancement

ESTIMATED COST: *Approx. cost December 2002 through December 2003:*

Coastal Conservancy	
Eradication, surveillance, monitoring	\$1,000,000
Data collection/compilation	<u>300,000</u>
SUBTOTAL	\$1,300,000
National Oceanic and Atmospheric	
Administration (NOAA) Fish America	30,000
NOAA Community-Based Restoration	50,000
National Fish and Wildlife Foundation	<u>20,000</u>
TOTAL	\$1,400,000

The anticipated source of Conservancy funds is its FY 02/03 appropriation from the California Clean Water, Clean Air, Safe Neighborhood Parks and Coastal Protection Fund (Proposition 40).

Cost June 2000 through November 2002:

Agua Hedionda Lagoon Foundation	5,000
Cabrillo Power I, LLC	123,000
State Water Resources Control Board	
Cleanup & Abatement Account	2,100,000
U. S. Fish & Wildlife Service	118,000
National Marine Fisheries Service	200,000
State Department of Fish and Game	850,000
Sea Grant -- UC Davis	<u>20,000</u>
TOTAL	\$3,416,000

Other confirmed available funds:

U.S. Environmental Protection Agency	
to SDRWQCB	\$600,000
(For development of treatment methods	
for use on any future infestations in open	
coastal waters)	

PROJECT SUMMARY: *Caulerpa taxifolia*, an aggressive exotic alga, was first detected in Agua Hedionda Lagoon and Huntington Harbour in June 2000. Since then, an ad hoc task force of federal and state resource and regulatory agencies, exotic species experts, and marine scientists has been conducting an emergency program to eradicate the invader. The *Caulerpa taxifolia* that threatens southern California is the same invasive aquarium strain of the alga that has devastated marine resources and commercial fishing in the Mediterranean Sea. The Southern California *Caulerpa* Action Team (SCCAT) is determined to avoid the well-publicized inaction that enabled the *Caulerpa* infestation in the Mediterranean to expand unchecked until it precipitated an ecological catastrophe. The Mediterranean experience has shown that *Caulerpa* can reproduce from small fragments distributed by the tides and currents and can thrive in high-energy near-shore areas. Thus, *Caulerpa* is also a significant immediate threat to other southern California wetlands and to marine resources.

Early results from the SCCAT *Caulerpa* eradication and surveillance effort are promising, but it is critical that the program be continued in order to prevent its spread. To date, the private owner of the Agua Hedionda Lagoon, Cabrillo Power I, LLC, and various state and federal agencies have been funding the *Caulerpa* program. (For further details on funding to date, see the "Estimated Cost" section above or the "Project Financing"

section of the accompanying staff report.) Now funds are needed from another source to continue the emergency program.

In June 2002, the Southern California Wetland Recovery Project (SCWRP) Board of Governors approved a *Caulerpa taxifolia* eradication project for inclusion in the WRP 2002-2003 Work Plan. The Board stipulated that any funds provided under the aegis of SCWRP should be for activities determined by SCCAT to be the highest priority. SCCAT has advised staff that continuation of the emergency program at Agua Hedionda Lagoon and Huntington Harbour is the highest priority.

Staff recommends the Conservancy take the following next steps: approval as an enhancement plan of the report titled "In Progress Review: Ancillary Data and Observations from *Caulerpa taxifolia* Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbour of the Southern California *Caulerpa* Action Team (SCCAT)" (attached to the accompanying staff report as Exhibit 1), and disbursement of an amount not to exceed \$1,300,000 to the Agua Hedionda Lagoon Foundation (the Foundation) for continuation of emergency eradication and surveillance efforts under the enhancement plan for approximately one year and for related data collection activities.

The Foundation has been an active supporter of the *Caulerpa* program. At the request of SCCAT, it has been administering grant funds that have been provided for the *Caulerpa* eradication program. Founded in 1990 in Carlsbad, the Foundation was formed to preserve and enhance Agua Hedionda Lagoon for scientific, historic, educational, ecological, recreational, agricultural, scenic, and open space opportunities. It is a 501(c)(3) nonprofit organization.

Strong stakeholder support for the project is evident. In addition to placement by the SCWRP Board of Governors among its Tier 1 projects, letters of support have been received from the National Marine Fisheries Service, the San Diego and Santa Ana Regional Water Quality Control Boards, the California Department of Boating and Waterways, the City of Carlsbad, the California Coastal Coalition, and the University of California at Davis (Exhibit 4).

COASTAL CONSERVANCY

Staff Recommendation

December 4, 2002

CAULERPA TAXIFOLIA ERADICATION PROGRAM

File No.02-079

Project Manager: Deborah Ruddock

STAFF

RECOMMENDATION: Staff recommends that the State Coastal Conservancy adopt the following Resolution pursuant to Sections 31251-31270 of the Public Resources Code:

"The State Coastal Conservancy hereby approves the report titled "In Progress Review: Ancillary Data and Observations from *Caulerpa taxifolia* Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbour of the Southern California *Caulerpa* Action Team (SCCAT)," attached as Exhibit 1 to the staff recommendation, as an enhancement plan, and authorizes the disbursement of an amount not to exceed one million three hundred thousand dollars (\$1,300,000) to the Agua Hedionda Lagoon Foundation (the Foundation) for continuation of emergency eradication and surveillance efforts in accordance with the enhancement plan for approximately one year and for related data collection activities. This authorization is subject to the conditions that, prior to disbursement of funds to the Foundation:

1. The enhancement plan has been determined by the California Coastal Commission to be in conformity with the policies and the objectives of the Coastal Act (Division 20 of the Public Resources Code).
2. The Foundation shall submit for the written approval of the Executive Officer of the Conservancy:
 - a. A final work program, project budget, and schedule;
 - b. The names and qualifications of any contractors or subcontractors that the Foundation intends to employ to implement the project;
 - c. Evidence that all necessary permits and approvals for the project have been obtained; and

- d. A signing program identifying the Conservancy's assistance."

Staff further recommends that the Conservancy adopt the following findings:

"Based on the accompanying staff report and attached exhibits, the State Coastal Conservancy hereby finds that:

1. The proposed project is consistent with the purposes and criteria set forth in Chapter 6 of the Public Resources Code (Sections 31251-31270) regarding enhancement of coastal resources.
2. The proposed project is consistent with the Project Selection Criteria and Guidelines adopted by the Conservancy on January 24, 2001.
3. The Agua Hedionda Lagoon Foundation is a nonprofit organization existing under Section 501(c)(3) of the U.S. Internal Revenue Code, and whose purposes are consistent with Division 21 of the Public Resources Code."

STAFF DISCUSSION

Project Description: **Introduction**

Staff recommends that the Conservancy approve the report titled "In Progress Review: Ancillary Data and Observations from *Caulerpa taxifolia* Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbour of the Southern California *Caulerpa* Action Team (SCCAT)" (Exhibit 1) as an enhancement plan and authorize disbursement of funds to the Agua Hedionda Lagoon Foundation for continuation of emergency eradication and surveillance efforts in accordance with the enhancement plan for approximately one year and for related data collection activities.

The enhancement plan, Exhibit 1, is a lengthy document. Accordingly, copies of it are provided to Conservancy board members. Additional copies are available in the Conservancy's Oakland office and will be made available at the Conservancy meeting.

While the title of the enhancement plan suggests that it only reports on past work, the document also describes the emergency activities that are to be continued. In addition, it describes the restrictions on public access to Agua Hedionda Lagoon and Huntington Harbour that regulatory agencies have imposed to reduce the likelihood of dispersing *Caulerpa* fragments and to

protect the divers and equipment engaged in emergency removal and surveys.

In order to avoid a hiatus in the emergency *Caulerpa* program, Conservancy staff has forwarded the enhancement plan to the Coastal Commission for a determination of conformity with the Coastal Act. The Commission is scheduled to consider the matter at its December 2002 meeting, shortly after the Conservancy considers the proposed project on December 4.

Description of the Enhancement Plan

The enhancement plan consists of two categories of activities: (a) *Caulerpa* eradication, containment, and access restrictions; and (b) *Caulerpa* surveying at infestation sites, and surveillance in areas of infestation sites and in areas at highest risk of infestation.

Eradication, Containment and Access Restrictions

Eradication or "treatment" of *Caulerpa* is achieved by installing impermeable tarps over infested areas weighted down by gravel bags. Chlorine in the form of either solid "pucks" or liquid solution is then inserted into these tarp-covered infested areas to bleach and kill the *Caulerpa*. Following treatment, sediment cores within selected treated patches are examined to see whether viable *Caulerpa* fragments remain and to determine whether additional "post-application" treatment is needed. If needed, post-application treatment options include: dredging of selected patches and enclosing the site with silt screen using a suction dredge that will extract sediment and plant material to a depth of 20 centimeters; capping of infested areas using a geosynthetic liner and a sediment cap for a year or more; and monitoring and spot eradication to control resurgence from residual *Caulerpa* rhizoids.

Because fishing and anchoring of vessels have been identified as potential causes of the spread of *Caulerpa* to different locations, boat access in areas of infestation is either prohibited or restricted in certain areas of Agua Hedionda Lagoon. In Agua Hedionda Lagoon, all fishing and anchoring of vessels within the inner lagoon is prohibited for an initial period of one year. In addition, recreational access to the Lagoon is regulated by establishment of zones with varying types of use limitations or restrictions to protect and facilitate eradication and surveying work. The City of Carlsbad regulates vessel access to Agua Hedionda Lagoon under Chapter 11.24 of the Carlsbad Municipal Code. Under this authority, the City has adopted an interim lagoon management plan that allows for retained water

recreational uses while facilitating eradication and survey efforts.

In Huntington Harbour, temporary boat access restrictions were requested of homeowners during initial treatment work. Shallow ponds are already closed to harbor traffic and are used only by paddleboats and swimmers. The infestation in the adjacent portion of the harbor that is accessible to boats is considered to present a low risk of spreading, and therefore no harbor closures have been necessary.

On September 26, 2002, AB 1059 was signed into law by Governor Davis. This regulation requires the Department of Boating and Waterways, upon request of the Director of Fish and Game, or his or her designee, to restrict or prohibit recreational vessel activity on waters of the state in general until January 1, 2004, and in Agua Hedionda Lagoon in San Diego County indefinitely, if that vessel activity would hinder or jeopardize efforts to control or eradicate *Caulerpa taxifolia*.

Surveying and Surveillance

During early eradication efforts, high intensity surveys were used in Agua Hedionda Lagoon to locate regions of *Caulerpa* infestation. However, as biomass has been greatly reduced within the lagoon, even more intensive "eradication level" surveys have been adopted throughout the entire lagoon. Eradication level surveys consist of SCUBA divers swimming side-by-side one meter wide transects to search for *Caulerpa*. Similar surveys are used in Huntington Harbour. During each complete survey of Agua Hedionda Lagoon, divers swim approximately 590 miles of lagoon bottom. At Huntington Harbour divers swim approximately 50 miles of transect line in each survey. Using the eradication level survey methods, the eradication team can identify even small fronds of *Caulerpa*. However, surveys are not one hundred percent effective and tests of survey efficacy suggest that even with the saturation coverage, some *Caulerpa* is being missed. As a result, continued surveys are necessary, even after the first negative results are obtained.

High intensity surveillance surveys are employed regularly in waters that are considered to be most at risk of a new *Caulerpa* infestation. These surveys use divers that are towed at 1 to 1.5 knots along transects by a small boat using survey-grade differential GPS. Surveillance surveys occur in areas at risk of infestation, including outside the lagoon mouth of Agua Hedionda Lagoon and the entire Huntington Harbour (although infestation is currently limited only to two small ponds and a small portion in the harbor itself). Surveillance level surveys are be-

ing used in prioritized waters along the southern California coastline. Surveillance surveys along the coastline have been performed at Alamitos Bay, Oceanside Harbor, Anaheim Bay, Mission Bay, Carlsbad offshore, Marina Del Rey, Ballona 'Del Ray' Lagoon, Newport Bay, Dana Point Marina, San Luis Rey River, San Diego River, Channel Islands Harbor, Ventura Harbor, Santa Barbara Harbor, and King Harbor. These surveys are usually performed using side-scan sonar, towed video cameras, and aerial surveys. Spot checks by divers are used in areas of dense vegetation or where remote sensing tools indicate "suspicious" survey returns. Divers also survey along beaches, walls, riprap, piers, discharge points, and any other potential entry points for *Caulerpa*.

Project Implementation

Due to the seriousness of the emergency and the absence of a dedicated funding source and legislative framework for dealing with the *Caulerpa* invasion, eradication program implementation has been ad hoc and somewhat decentralized. Under SCCAT oversight, biological resources consultant Merkel & Associates has been conducting eradication and surveillance activities under contract to the City of Carlsbad for Agua Hedionda Lagoon and to the Santa Ana Regional Water Quality Control Board for Huntington Harbour. The *Caulerpa* eradication program has tapped multiple sources of funding to cover costs and will continue to do so for the foreseeable future. Given state and federal budget constraints, grant funding will play an increasingly important role in eradication program implementation.

The Agua Hedionda Lagoon Foundation is the proposed grantee for the \$1.3 million Conservancy authorization that is the subject of this staff recommendation. A 501(c)(3) nonprofit organization, the Foundation is dedicated to the preservation of the Agua Hedionda Lagoon and its coastal resources and also operates a nature center at the Lagoon built with Conservancy assistance. The Foundation is an active participant in SCCAT. At the request of and in cooperation with the SCCAT steering committee (consisting of representatives of California Department of Fish and Game, National Marine Fisheries Service, U.S. Department of Agriculture, and Santa Ana and San Diego RWQCBs), the Foundation has applied for grant funds to continue the *Caulerpa* eradication program. The Foundation will administer the grant funds it is successful in obtaining.

The Foundation's Conservancy-funded work would commence when the present *Caulerpa* eradication program funding from

other sources is exhausted. Under the proposed authorization, the Foundation will manage implementation of the enhancement plan, which includes treatment and surveillance elements, under SCCAT oversight. Based upon costs incurred over the last 2-1/2 years, the proposed Conservancy funding is expected to cover approximately one year of eradication, surveillance, and post-treatment monitoring. Since the eradication measures appear to be successful, and the size of *Caulerpa* patches is diminishing, SCCAT predicts that the predominant activity over the next several years will be meticulous surveillance by teams of divers for signs of regrowth and newly-detected colonies.

In addition to managing the emergency *Caulerpa* eradication program, as part of the proposed project the Foundation will work with SCCAT and Conservancy staff to compile and distribute data collected during treatment and surveillance activities, as well as to identify and collect any additional data that may be needed for adaptive management purposes and for future environmental review. This part of the project will be carried out in parallel with ongoing eradication and surveillance efforts to avoid delays or complications that would otherwise hinder those efforts.

Conservancy funded activities will focus on *Caulerpa* infestations at Agua Hedionda Lagoon and Huntington Harbour unless and until new infested regions are discovered resulting in revised SCCAT priorities.

Project Financing: *Approx. cost December 2002 through December 2003:*

Coastal Conservancy

Eradication, surveillance, monitoring	\$1,000,000
Data collection/compilation	<u>300,000</u>
SUBTOTAL	\$1,300,000

National Oceanic and Atmospheric

Administration (NOAA) Fish America	30,000
NOAA Community-Based Restoration	50,000
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TOTAL	\$1,400,000

The anticipated source of Conservancy funds is its FY 02/03 appropriation from the California Clean Water, Clean Air, Safe Neighborhood Parks and Coastal Protection Fund (Proposition 40).

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State Water Resources Control Board	
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State Department of Fish and Game	850,000
Sea Grant -- UC Davis	<u>20,000</u>
TOTAL	\$3,416,000

Other confirmed available funds:

U.S. Environmental Protection Agency	
to SDRWQCB	\$600,000
(For development of treatment methods	

for use on any future infestations in open coastal waters)

Site Description: The principal sites of the proposed *Caulerpa* eradication project are expected to be Agua Hedionda Lagoon and Huntington Harbour, the only places on the west coast of North America where *Caulerpa taxifolia* has been detected to date. In accordance with the enhancement plan, surveys and eradication, as needed, may extend to other southern California coastal locations if determined advisable by SCCAT. No specific sites for expanded efforts have been identified.

The site of the largest infestation of *Caulerpa taxifolia*, Agua Hedionda Lagoon, is a coastal lagoon located approximately 20 miles north of San Diego in the City of Carlsbad, as shown on Exhibits 2 and 3. The 286-acre lagoon connects hydrologically and ecologically to the Pacific Ocean as well as to wetlands and transitional/upland areas. Agua Hedionda Creek flows into Agua Hedionda Lagoon where it mixes with seawater to produce estuarine conditions supporting a high level of species diversity. Like other coastal lagoons in San Diego County, Agua Hedionda Lagoon is divided by several north-south transportation corridors into three basins: Outer, Middle, and Inner. To date, *Caulerpa* has been found in the Inner Basin only.

A diverse and productive assemblage of organisms colonizes the varied habitats in and around the lagoon. Many species of invertebrates and fish including lobster, California halibut, kelp bass, and barred sand bass are attracted to the extensive eelgrass meadows for cover and protection. The U.S. Fish and Wildlife Service (USFWS) has designated portions of the Inner Basin as critical habitat for the federally listed tidewater goby.

The lagoon supports more than 50 species of water-related birds. Connected to Agua Hedionda Lagoon are nearly 200 acres of wetlands and associated upland habitat, which were dedicated in late 2001 to the California Department of Fish and Game for long-term preservation and management as a new state ecological reserve. Listed species that may inhabit or potentially use the lagoon and its surroundings include the California brown pelican, California least tern, western snowy plover, light-footed clapper rail, Belding's savannah sparrow, least Bell's vireo, and California gnatcatcher.

The lagoon supports numerous land uses and activities, all dependent on a functioning, healthy lagoon, including: the Hubbs-Seaworld seabass fish hatchery and research institute; aquaculture production and research; the Encina Generating Station; a YMCA children's camp; commercial water sports entities; a residential boat harbor; private residences; and many other public recreational open space amenities including a trail system, kayaking, and fishing. Maintenance dredging in the Outer Basin, conducted as part of power generation operations, maintains the tidal prism and tidal exchange throughout the entire lagoon system.

Huntington Harbour is located in northwest Huntington Beach, just inland from Sunset Beach. It is used primarily for recreational boating. Several marinas and many private docks are located on the harbor .

Despite the presence of boating facilities and the densely developed surroundings, Huntington Harbour is a critical component of two major coastal wetland systems. The harbor's main channel serves as the tidal connection for the Inner and Outer Bays of the Bolsa Chica wetlands just downcoast and connects with Anaheim Bay, site of a USFWS refuge, just upcoast.

Project History: *Caulerpa taxifolia*, which is native to tropical waters, became popular in the saltwater aquarium trade in the late 1970s as a fast-growing and decorative aquarium species. In 1984, a clone of the species was released into the Mediterranean Sea off Monaco and rapidly spread from an initial patch of about one square meter to over a hectare by 1989, and many thousands of hectares today. The algae are widespread through much of the northwestern Mediterranean and have invaded Australia.

The Mediterranean clone-the type now found in southern California--can grow larger, deeper, and in colder waters than the tropical populations of the species and as such threatens not only tropical areas, but temperate regions as well. It grows on

almost any substrate from rocky to mud bottoms, and occurs across energy gradients from protected bays to exposed headlands. It can attain great monotypic stands whose impact has been compared to unrolling a carpet of "Astroturf" across the bottom of the sea. In areas where the species has become well established it has caused ecological and economic devastation by overgrowing and eliminating native seaweed, sea grass, reefs, and other communities.

Based on *Caulerpa*'s demonstrated ability to invade, persist, and spread in Mediterranean marine waters having similar environmental conditions to much of the Pacific coastal, lagoon, and estuarine systems, the federal government placed *Caulerpa taxifolia* on the U.S. Federal Noxious Weed List in 1999 following petition by more than a hundred prominent scientists. This action effectively banned the importation and interstate commerce of this species, but did not address the abundance of *Caulerpa* already available in the private aquarium markets.

On June 12, 2000, Merkel & Associates, biologists conducting research on transplanted eelgrass beds, discovered *Caulerpa taxifolia* growing in the lagoon. This discovery represented the first known occurrence of *Caulerpa* in the Western Hemisphere. *Caulerpa* subsequently was identified in Huntington Harbour on July 27, 2000.

Since its discovery in 2000, *Caulerpa taxifolia* has been the focus of an intense eradication and monitoring effort. Cabrillo Power I, LLC, the private owner of Agua Hedionda Lagoon, initiated the immediate action program undertaken at the lagoon. Within days, however, an ad hoc multi-agency public/private task force known as the Southern California *Caulerpa* Action Team (SCCAT) organized to respond to the significant threat posed by the species. SCCAT, comprised of federal and state resource and regulatory agencies, exotic species experts, and marine resource scientists, investigated treatment options including the application of chlorine and various herbicides. In preliminary studies, chlorine proved to be the most effective and practical agent in the field. The SCCAT response to the *Caulerpa* invasion was formulated and adopted as "Rapid Response and Eradication Program for the Invasive Green Alga, *Caulerpa taxifolia* at Agua Hedionda Lagoon, Carlsbad, California."

Caulerpa eradication activities since the initial discovery have proceeded under the following authorizations, all issued in 2000: U.S. Army Corps of Engineer Nationwide Permit (NWP 27); the San Diego and Santa Ana Regional Water Quality

Control Board emergency and categorical CEQA exemptions; California Coastal Commission emergency permit; and California Department of Pesticide Regulation waiver for the placement of the tarps and the application of chlorine. Current eradication methodology has been developed based on research, monitoring and input from the regulatory agencies that are members of SCCAT. In particular, the methodology has been reviewed by the U.S. Fish and Wildlife representative to SCCAT, who has concluded that it will not adversely affect existing endangered or threatened species located in the coastal waters (see Exhibit 4).

SCCAT developed and published an updated rapid response and eradication program in January 2002, "In Progress Review: Ancillary Data and Observations from *Caulerpa taxifolia* Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbour of the Southern California *Caulerpa* Action Team (SCCAT)." This document is attached as Exhibit 1 to this staff recommendation for Conservancy consideration and approval as an enhancement plan. While the SCCAT has focused its funding and effort on emergency eradication, data collected concurrent with treatment and surveillance activities have provided and will continue to provide the basis for methodology refinements. Future data collection under the proposed project will serve the same purpose.

PROJECT SUPPORT: Letters of support for the proposed project have been received from most of the SCCAT participating agencies, including the National Marine Fisheries Service, the San Diego and Santa Ana Regional Water Quality Control Boards, the California Department of Boating and Waterways, San Diego Gas & Electric Company, the City of Carlsbad, the California Coastal Coalition, and the University of California at Davis (Exhibit 4). In addition, the Board of Governors of the 17-agency Southern California Wetlands Recovery Project has identified the project as a Tier 1 priority on its current work plan.

**CONSISTENCY WITH
CONSERVANCY'S**

ENABLING LEGISLATION: Chapter 6 of Division 21 of the Public Resources Code (sections 31251 *et seq.*) provides for the Coastal Conservancy's participation in a program of coastal resource enhancement. Section 31251 authorizes the Conservancy to award grants for the purpose of enhancement of coastal resources, which, because of natural or human-induced events, suffer loss of natural values. The proposed project will assist the Conservancy in

meeting those objectives by enabling enhancement of the biological and hydrological resources of Agua Hedionda Lagoon, Huntington Harbour, and all of the coastal waters and wetlands of southern California through containment and eradication of a highly invasive, destructive non-native alga.

Public Resources Code Section 31252 specifies that "(a)ll areas proposed for resource enhancement by a state agency, local public agency, or nonprofit organization shall be identified in a certified local coastal plan or program as requiring public action to resolve existing or potential resource protection problems or shall be so identified in other local plans which the commission determines to be consistent with the policies and objectives of Division 20 (commencing with Section 30000). ..." Neither a local land use plan nor local coastal program has been certified for Agua Hedionda Lagoon. However, the Agua Hedionda Land Use Plan (LUP), while not yet effectively certified, identifies the lagoon as an environmentally sensitive habitat area that should be preserved and enhanced. Likewise, Huntington Harbour is under Coastal Commission, not local, jurisdiction. Thus, it also is not covered by an approved local coastal plan.

However, the enhancement plan that is the subject of the proposed project describes a program for rescuing the natural resources of the lagoon. It is, in essence, a "local plan" that identifies the coastal areas needing resource protection, as required by Section 31252. The enhancement plan will be reviewed by the Coastal Commission for consistency with Division 20 of the Public Resources Code and the project is specifically conditioned on the Commission making that determination.

Public Resources Code Section 31253 provides that the Conservancy "may provide up to the total cost of any coastal resource enhancement project. ..." Staff is recommending that the Conservancy fund the cost of *Caulerpa* eradication and surveillance for approximately one year, using funds appropriated for this purpose.

Finally, Public Resources Code Section 31258 requires that the Conservancy forward an enhancement plan to the Coastal Commission for determination of conformity with the policies and objectives of the Coastal Act. As noted above, consistent with Section 31258, staff has forwarded the enhancement plan and the Commission is scheduled to consider the matter at its December 2002 meeting. The proposed grant of funds is predicated on the Commission's determination that the enhancement plan conforms to Coastal Act requirements.

CONSISTENCY
WITH
CONSERVANCY'S
PROJECT
SELECTION

CRITERIA & GUIDELINES: The proposed project is consistent with the Conservancy's Project Selection Criteria and Guidelines adopted January 24, 2001, in the following respects:

Required Criteria

Promotion of the Conservancy's statutory programs and purposes: As indicated above, the proposed project is consistent with Chapter 6 of Division 21 of the Public Resources Code (Sections 31251 *et seq.*), which provides for the Coastal Conservancy's participation in a program of coastal resource enhancement.

Consistency with purposes of the funding source: The proposed project is consistent with the funding source, the Clean Air, Safe Neighborhood Parks and Coastal Protection Act of 2002 (Proposition 40), which allocates bond funds to the Conservancy for the purposes of restoration and protection of land and water resources in accordance with Division 21 (Public Resources Code Section 5096.650). Further, the proposed project is appropriate for priority under Proposition 40, as it is associated with matching funds derived from a multitude of other sources (Public Resources Code Section 5096.651).

Support: See the "Project Support" section above.

Location: The project will take place in Agua Hedionda Lagoon, located in the coastal zone in northern San Diego County, and Huntington Harbour, located in the coastal zone in Orange County. Areas at high risk of invasion by *Caulerpa taxifolia* from fragments dispersed from the lagoon and harbor include nearshore waters and tidal lagoons and bays from Point Conception south to the Mexican border.

Need: The *Caulerpa taxifolia* eradication program is expected to be out of funding this year. As shown in the "Project Financing" section above, funding has been provided from an array of sources to support work accomplished thus far. This funding is expected to be depleted shortly, leaving the need for an estimated \$1.1 million to continue the eradication and surveillance for another year.

Greater than local interest: If left alone, *Caulerpa taxifolia* could spread to coastal wetlands and waters throughout the region. Further, given the cold temperature tolerances of this alga, it could migrate well into northern California and poten-

tially even southern Oregon coastal waters. Perhaps an even greater risk is that this species could thrive in the waters of Mexico, located 45 miles to the south and down drift of Agua Hedionda Lagoon. The effects of an unconfined *Caulerpa* infestation could be devastating to the state's coastal wildlife habitat, recreational and commercial fisheries, and tourist economy. If the proposed project can prevent *Caulerpa* from moving beyond Agua Hedionda Lagoon and Huntington Harbour, it will avoid substantial negative impacts to other coastal resources in the region, and possibly throughout the state.

Additional Criteria

Urgency: The threat to southern California's coastal resources is extreme if the *Caulerpa* program fails, as discussed at length above in the "Project Description" and "Project History" sections

Readiness: A rapid response and eradication program already exists and is being implemented at Agua Hedionda Lagoon and Huntington Harbour under the direction of the SCCAT. The proposed Conservancy authorization would allow the continuation of these efforts for approximately one year, as well as provide funds needed for related data collection activities.

Cooperation: The SCCAT is an ongoing collaboration of federal, state, and local agencies, as well as private companies and scientists.

CONSISTENCY WITH

THE COASTAL ACT: At its December 2002 meeting the California Coastal Commission will determine whether the proposed project, as described by the enhancement plan, conforms to the Coastal Act. Conservancy staff and Coastal Commission staff believe that it does for the following reasons.

The enhancement plan is consistent with the requirement that "marine resources shall be maintained, enhanced, and where feasible, restored" as required by Coastal Act Section 30230. The enhancement plan will be carried out in a manner such that the "biological productivity of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained," as required by Coastal Act Section 32031.

From experience in the Mediterranean Sea, it is known that unchecked *Caulerpa* could rapidly invade large portions of coastal bays and nearshore environments and destroy eelgrass

and kelp beds and other native ecosystems. The destruction of these ecosystems would imperil the survival of invertebrate and fish species. The purpose of the enhancement plan is effective eradication of *Caulerpa* before it spreads to marine waters with catastrophic consequences. The enhancement plan is thus consistent with Section 30230.

The eradication methodology is designed and implemented to minimize impacts on water quality and biotic resources. Plant biomass is tarped, and solid chlorine pucks are used to minimize escape of chlorine into the water column. The treatment area is small, permitting relatively quick restoration and recolonization of benthic and eelgrass habitats. The enhancement plan is thus consistent with Section 32031.

Section 30214 of the Coastal Act requires that public access policies take into account the time, place, and manner of public access depending on the facts and circumstances relevant to each case. In the case of this *Caulerpa* enhancement plan, temporary public access and recreation restrictions are necessary to perform *Caulerpa* eradication and surveillance work. This work will protect and restore sensitive marine resources in infested areas and prevent further damage to non-infested areas through prevention of the spread of invasive *Caulerpa*. The enhancement plan is consistent with Section 30214 because *Caulerpa* eradication activities and public access restrictions in Agua Hedionda Lagoon (and in any potential new infestation areas) have been developed based on a scientific assessment and consideration of the time, place, and manner of restrictions necessary to protect marine resources.

CONSISTENCY WITH LOCAL COASTAL

PROGRAM POLICIES: The Agua Hedionda Land Use Plan (LUP) serves as the City of Carlsbad's Local Coastal Program (LCP) for this area. While not yet effectively certified, the LUP identifies the lagoon as an environmentally sensitive habitat area that should be preserved and enhanced. The proposed project is consistent with the LUP as it will facilitate the enhancement of the Agua Hedionda Lagoon by removing an invasive alga that displaces native habitat and wildlife.

Huntington Harbour is located in the City of Huntington Beach, which has a certified local coastal program for this portion of the City. However, the proposed project is located seaward of the mean high tide line and thus is within the Coastal Commission's original permit jurisdiction area. Therefore, pursuant to

Section 30519 of the Coastal Act, the LCP does not apply to the proposed project.

COMPLIANCE

WITH CEQA: Implementation of the enhancement plan, "In Progress Review: Ancillary Data and Observations from *Caulerpa taxifolia* Eradication Efforts at Agua Hedionda Lagoon and Huntington Harbour of the Southern California *Caulerpa* Action Team (SCCA T)" is exempt from the provisions of the California Environmental Quality Act (CEQA), pursuant to 14 Cal. Code of Regulations Sections 15269, 15304, 15307, and 15308.

Section 15269(c) of 14 Cal. Code of Regulations exempts specific actions necessary to prevent or mitigate an emergency. Control and eradication of the *Caulerpa* infestation in southern California is viewed as a high priority emergency by both state and federal resources and regulatory agencies. As described above, the spread of *Caulerpa* through California's coastal waters has the potential to cause extensive ecological and economic damage. The risk of extensive harm in the absence of an immediate response is very high. Experience in the Mediterranean Sea has shown that the only successful attempts to control *Caulerpa* have been those that quickly and aggressively attacked the algae. Eradication efforts at Agua Hedionda Lagoon, Huntington Harbour, and any future sites identified are being conducted on an emergency basis in an attempt to prevent or mitigate additional impacts from an unchecked invasion.

In addition, the proposed project involves short-term, minor alteration to the condition of water and water-based vegetation that will result in long-term and lasting benefits to the coastal resources. The eradication and control work under the project is both limited in time and encompasses a small physical area. As a result, the project is also subject to categorical exemption from CEQA pursuant to Section 15304 of 14 Cal. Code of Regulations.

The proposed project is a continuation of the eradication and control activities originally initiated, approved and funded by state regulatory agencies, including the State Water Resources Control Board, which is statutorily authorized to undertake abatement action with respect to threats to water quality. These regulatory agencies, as member agencies of SCCA T, continue to fully support, approve, and direct the ongoing efforts to protect the natural resources of the coast and the coastal environment from the severe and imminent threat posed by the *Caulerpa* invasion. As part of these ongoing efforts, the proposed

project is also categorically exempt from CEQA pursuant to Sections 15307 and 15308 of 14 Cal. Code of Regulations.

Finally, basic data collection such as that associated with the *Caulerpa* eradication and surveillance activities is a type of activity that is categorically exempt from CEQA review pursuant to Section 15306, 14 Cal. Code of Regulations.

Staff will prepare and submit a Notice of Exemption for the project upon approval by the Conservancy board.